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DESCRIPTIONS OF NEW PARASITIC HYMENOPTERA.

BY WILLIAM H. ASHMEAD.

(Paper No. 1.)

It is my intention, in a series of papers with the above title, to describe the unnamed material in the different families of the parasitic Hymenoptera, which has accumulated in my collection during the past fifteen years or more, and then follow with synopses of the different families, genera and species.

No doubt some objection will be made to thus publishing so many isolated descriptions, but it seems to me, considering the immense number of species still undescribed in our collections and the new ones constantly turning up, that such a course is justifiable, as synopses published to-day, in most of the groups, are valueless in a few months.

The present paper contains the descriptions of many of the new species reared by Prof. A. D. Hopkins, of the West Virginia Agricultural Experiment Station, at Morgantown, who has done so much towards making known the parasites of our destructive forest insects in the past three or four years, and whose work is of inestimable value.

Subfamily PERILAMPINÆ.

EUPERILAMPUS Walker.

1871.—Notes on Chalcididæ, pt. iv, p. 67.

(Type *P. gloriosus* Walk.)**Euperilampus opacus** sp. n.

♀.—Length 4 mm. Black, opaque, with coarse, umbilicate punctures; tarsi brown; head as wide as the thorax, emarginate, the frons with a deep antennal furrow, the face shorter than wide; antennæ 13-jointed, short, not longer than the width of head, the flagellar joints all short, much wider than long. Pronotum quadrate, narrowed anteriorly into a slight neck; mesonotum broader than long, the parapsidal furrows indistinct, obliterated posteriorly; scutellum produced behind into a spine like process that projects over the metanotum; metathorax short, rugulose; wings hyaline, the nervures as in *Perilampus*, brown-black; tegulæ large, black, punctate. Abdomen oblong-oval, as long as the thorax, subsessile, coarsely, reticulately punctate, the second segment occupying nearly the whole surface.

Hab.—Denver, Col. Type in coll. Amer. Entomological Society.
Described from a single specimen taken in June.

Subfamily EURYTOMINÆ.

In "Entomologica Americana," vol. iv, 1888, p. 42, I gave a generic table of this subfamily, indicating many new genera, but without designating types, as it was my intention to follow it shortly with a descriptive paper, giving not only the full descriptions of the genera, but a synopsis of our species.

Several years have now passed and I am still at work on a synopsis, but as this is still unfinished, it seems to me advisable to no longer delay in indicating and describing the types of these genera, and I here take the opportunity of doing so; also to indicate three other genera at that time unknown to me, which I believe should be placed in this group, viz.: *Eudoxinna* Walker, placed by Walker and Westwood with the Chalcidinae; *Chryseida* Spinola, placed by Spinola with the Pteromalinae, and by Westwood with the Perilampinae; and *Axima* Walker, placed by Walker and Kirby with the Chalcidinae, and by Cameron into a subfamily called Aximinæ.

All of these genera are known to me in nature, and they are placed here after careful study.

DECATOMA Spinola.

1811.—Ann. du Mens. d'Hist. xvii, p. 151.

(Type *Diplolepis adonidum* Rossi.)

EUDECATOMA Ashmead.

1888.—"Entomologica Americana," vol. iv, p. 42 (June).

(Type *Decatoma batatoides* Ashm.)

Eudecatoma batatoides Ashm.

Decatoma batatoides Ashm., Can. Ent. vol. xiii. p. 136.

SYSTOLE Walker.

1832.—Ent. Mag. vol. i, p. 22.

(Type *S. albipennis* Walk.)

Systole minuta sp. n.

♂ ♀.—Length 1 mm. Robust, black, shining, the head and thorax faintly sculptured, the abdomen highly polished; legs, except knees, tibiæ and tarsi, black; knees, tibiæ and tarsi, except a blotch outwardly on middle tibiæ and most of hind tibiæ, honey-yellow; palpi white; mandibles rufous. Antennæ black, or brown-black, the scape yellowish at extreme base; in the ♀ the flagellum is clavate-brown, the funicular joints 2-5 transverse, club 3-jointed, stout, fusiform; in the ♂ the flagellum is filiform-submoniliform, black, with long white hairs, the first joint twice as long as the second, joints 2-4 moniliform, club 3-jointed, the joints compacted, the last being very small. Wings hyaline, the venation brownish yellow, the marginal nervure short, stout, not quite as long as the stigmal, which terminates in a small knob.

Hab.—Jacksonville, Fla.

Described from several specimens captured on *Phlox*.

SYSTOLODES Ashmead.

1888.—"Entomologica Americana," vol. iv, p. 42 (June).

(Type *S. brevicornis*.)**Systolodes brevicornis** sp. n.

♀.—Length 1.5 mm. Black, shining, feebly shagreened, with traces of very shallow umbilicate punctures; knees, anterior tibiæ, except a blotch outwardly, and all tarsi, except sometimes the posterior pair, honey-yellow. Antennæ 10-jointed, short, subclavate, black, the first joint of funicle slightly the longest joint, the four following about equal, quadrate, club fusiform, 3 jointed, as long as the last three joints of funicle united. Wings hyaline, the nervures light brown, the marginal not longer than the stigmal, the latter ending in a knob with a slight uncus. Abdomen globose, subsessile, not longer than the thorax, the first four body segments very nearly equal, the following retracted within the fourth, and not visible, or only the smallest particle visible.

♂.—This sex differs from the ♀ only as follows: The antennæ are longer, with long, white hairs; the pedicel very small; the funicle only 4-jointed, the joints excised at apex, the first the longest, about two and a half times as long as wide, the following gradually shortening, the last being only a little longer than wide; club 3-jointed, as long as the last two funicular joints united.

Hab.—Ottawa and Cap Rouge, Canada. Types in coll. Ashm.

Described from specimens received some years ago from Mr. W. Hague Harrington and Abbe Provancher. This genus apparently connects *Systole* Walk. with *Bruchophagus* Ashm., and could be easily mistaken for specimens of *Bruchophagus* (*Eurytoma*) *funebri*s How.

XANTHOSOMA Ashmead.

1888.—"Entomologica Americana," vol. iv, p. 42 (June).

(Type *X. nigricornis*.)**Xanthosoma nigricornis** sp. n.

♀.—Length 2.5 mm. Brownish yellow, shagreened, the lobes of the mesonotum almost smooth, at the most very delicately shagreened, the scutellum more coarsely sculptured; eyes and a stripe on posterior tibiæ brown; ocelli and flagellum black. Head transverse-quadrate, wider than thorax, with a frontal sulcus; antennæ 10-jointed (or 11-jointed, counting a small ring-joint), subfiliform, scarcely thickened toward apex, attached below the middle of face, the scape very slender, a little longer than half the length of the flagellum, the pedicel small, rounded, the funicle 5-jointed, the joints submoniliform, subequal, the first slightly the longest, the club fusiform, 3-jointed, almost as long as the last three joints of funicle united. Thorax with the pronotum transverse-quadrate, a little narrower than the mesonotum, but fully as long, or about twice as wide as long; mesonotum trilobed, the lobes convex; scutellum convex, rounded behind, the axillæ touching each other at its base; metanotum with a median sulcus; wings hyaline, the marginal nervure about twice as long as the stigmal, the postmarginal not longer than stigmal. Abdomen subsessile, conic-ovate, as long as the head and thorax united, the first three body segments nearly equal in length, the fourth twice as long as the third, the fifth and sixth very short, the fifth a little the shorter, seventh very short.

Hab.—Jacksonville, Fla. Types in coll. Ashmead.

RILEYA Ashmead.

1888.—"Entom. Amer.," vol. iv, p. 42; Bull. No. 3, Kans. Exp. Sta. App. p. iii,
(Type *R. cecidomyiæ* Ashm.)

Rileyella mellea sp. n.

♀.—Length 1.8 mm. Brownish yellow or honey-yellow; eyes, ocelli and flagellum, brown; legs pale yellowish or whitish; wings hyaline, the nervures pale brownish, the marginal nervure about two-thirds the length of the subcostal, the stigmal less than one-third the length of the marginal ending in a small knob with an uncus, the postmarginal long.

Hab.—Indian River, Fla. Types in National Museum.

Described from several specimens reared July, 1885, from a gall (? *Cecidomyious*) on Skunk Bush.

Rileyella œcanthi sp. n.

♀.—Length 6 mm. Much elongate, black, feebly punctate, shining; tips of femora, tibiæ and tarsi honey-yellow; face elongate, with two furrows extending from base of antennæ to clypeus; antennæ 13-jointed, with three ring-joints. Pronotum quadrate, longer than the mesonotum; parapsides distinct; wings hyaline, the nervures blackish, the marginal vein very long, longer than the subcostal, the stigmal vein not quite one-third the length of marginal, ending in a stigma and an uncus; postmarginal extending to the apex of the wing. Abdomen subsessile, cylindrical, pointed at apex and about three times as long as the head and thorax united, feebly sculptured, shining, the fourth and fifth segments very long.

♂.—Length 2.5 mm. Agrees with the ♀ in all respects, except in its smaller size, and in having a less pointed and shorter abdomen, the latter being only one-third longer than the head and thorax united.

Hab.—Lincoln, Neb. and Atlantic County, N. J. Types in National Museum and coll. Ashmead.

The specimen in the National Museum is labeled as having been reared by Prof. L. Bruner, from eggs of *Oecanthus niveus* De Geer; the specimens in my collection, 1 ♂ 1 ♀, were received from Prof. John B. Smith, and were reared by him, together with four specimens of a small Braconid, from a stalk of some composite plant.

BEPHRATA Cameron.

1884.—"Biologia Central-Americana," Hym. p. 109.

(Type *B. ruficollis* Cam.)

Bephrata cubensis sp. n.

♀.—Length 8 mm. Rufous, coarsely, umbilicately punctate; scape, except apex above, legs and tegulæ, pale ferruginous; flagellum brown; wings hyaline, with a dusky blotch on the disc below the marginal nervure, the latter being a little longer than the stigmal; the stigmal ending in a small knob, not longer than the postmarginal. First flagellar joint about as long as the scape, but stouter, the following joints longer than thick; frons with a deep antennal furrow. Abdomen longer than the head and thorax united, compressed, round-

edly elevated dorsally towards base, then depressed and curving upwards at tip, the ovipositor slightly projecting; petiole very short, wider than long; sides of abdomen with white hairs.

Hab.—Cuba. Types in coll. American Entomological Society.
Described from three specimens.

EUDOXINNA Walker.

1862.—*Sosxetra* Walk., Trans. Ent. Soc. Lond. (3) vol. i, p. 370.

1863.—*Eudoxinna* Walk., l. c. ii, p. 306; Westw., Thes. Ent. Oxon. p. 137 (1874),

(Type *E. transversa* Walk.)

Eudoxinna transversa Walk.

Sosxetra transversa Walk., l. c. ii, p. 306; Westw., Thes. Ent. Oxon. p. 537,
pl. xxv, 6, 9.

Hab.—Brazil.

DECATOMIDEA Ashmead.

1888.—"Entomologica Americana," vol. iv, p. 42 (June).

(Type *D. xanthochroa* Ashm.)

Decatomidea xanthochroa sp. n.

♀.—Length 3.5 mm. Yellow, a spot on vertex, transverse-quadrate spot on middle of pronotum, middle lobe of mesonotum, scutellum, but not the axillæ, metathorax, except pleura, and abdomen, except the venter, black. Head transverse, a little wider than thorax, with a deep antennal furrow, the margins of the furrow being ridged or carinated; antennæ short, the flagellum subclavate, light brown, the scape and pedicel yellow, the scape very slender. Pronotum transverse-quadrate, fully twice as wide as long; mesonotum nearly one-half longer than the pronotum with the parapsidal furrows obliterated posteriorly; scutellum convex, rounded off behind, the axillæ triangular, about half their width from each other; metanotum very short, rounded off behind. Wings hyaline, pubescent, the venation yellowish, the marginal veins linear, but somewhat thickened, its length being about four times its width; stigmal vein oblique, subclavate, about two-thirds the length of the marginal. Abdomen sessile, short-ovate, subcompressed, not quite as long as the thorax, smooth and highly polished; first and second (body) segments about equal, the second scarcely half the length of the third, fourth segment fully as long as the second and third united, the fifth as long as the second, the sixth very short.

Hab.—Jacksonville, Fla. Type in coll. Ashmead.

Decatomidea polygraphi sp. n.

♀.—Length 2.5 mm. Black, opaque, umbilicate punctate; mandibles rufous, with small black teeth; scape and legs light brownish yellow; anterior femora above, hind coxæ, hind femora and tibiæ, except at base and apex, black; anterior angles of pronotum with a large yellow, or yellowish white spot; eyes whitish. Head transverse, wider than thorax, the occiput concave, the frons with an antennal furrow; antennæ finely pubescent, the funicle 5-jointed, the first joint longer than wide, the four following submoniliform, a little wider than long; club stouter, ovate, 3-jointed, the joints compacted. Thorax with the pronotum transverse-quadrate, a little wider anteriorly than posteriorly; meso-

notum not quite as long as the pronotum, with distinct parapsidal furrows; metanotum short, abrupt; wings hyaline, the marginal vein a little longer than the stigmal, postmarginal slightly longer than stigmal. Abdomen oval, highly polished, with a very short petiole, the fifth segment a little more than twice as long as the fourth, the sixth and seventh segments short, sparsely pubescent.

Hab.—Morgantown, W. Va. Types in coll. West Virginia Experiment Station.

Described from two ♀ specimens bred by Prof. A. D. Hopkins from *Polygraphus rufipennis* in spruce.

CHRYSEIDA Spinola.

1840.—Guer., Mag. de Zool. Ins. pl. xlii.

1874.—Westw., Thes. Ent. Oxon. p. 140.

(Type *C. superciliosa* Spin.)

Chryseida cyanea Fabr.

Chalcis cyanea Fabr., Syst. Piez. p. 164.

Hab.—Brazil.

I have recognized this long lost species from a single specimen collected by Mr. Herbert H. Smith at Chapada in April. It measures 8 mm. in length, is very coarsely rugoso-punctate, almost entirely blue, with only some slight metallic reflections, especially in the coarse punctures on the head, mesopleura and coxæ, the knees and tarsi white, ocelli red, the wings subfuscous, while the abdomen is conic-ovate, finely closely punctate.

EURYTOMA Illiger.

1807.—Illiger, in Rossi Faun. Etr. ii, p. 127.

(Type *E. plumata* Ill.)

Eurytoma cleri sp. n.

♀.—Length 4 mm. Black; scape and legs, except hind coxæ, honey-yellow, or reddish yellow; flagellum about three times as long as scape; joints of funicle nearly equal, about twice as long as thick; pronotum transverse-quadrate, not quite as long as the mesonotum; scutellum as long as the mesonotum; metanotum rather long, impressed medially, tegulæ rufous. Wings hyaline, the venation light brown, the submarginal towards base pale or yellowish; the marginal vein is not quite twice as long as the stigmal, the postmarginal much longer than the stigmal. Abdomen subsessile (the petiole not apparent), elongate, conically pointed, one and a half times as long as the head and thorax united, highly polished, the second and fifth segments short, about equal, the first as long as the second and third united, the fourth a little longer, the sixth about half as long as the fourth.

Hab.—Morgantown, W. Va. Bred by Prof. A. D. Hopkins from a Clerid larva found in scrub pine.

In the length of the metanotum and the long conical sessile abdomen, the species is quite unique in the genus.

Eurytoma crassineura sp. n.

♀.—Length 2.5–3 mm. Black, opaque, clothed with a short, glistening pubescence; head and thorax, umbilicate punctate; scape beneath, knees, tips of the tibiae and all tarsi, except last joint, brownish yellow, the tarsi sometimes whitish, tegulae rufopiceous; abdomen conic-ovate, subcompressed, highly polished, the petiole a little longer than thick, punctate. Head transverse, as wide as the mesonotum, about two and one-half times as wide as thick antero-posteriorly, cheeks above flat, below toward mouth a little broader and with a slight margin; frons with an antennal furrow; face covered with a short, rather dense, white pubescence; mandibles piceous-black; palpi fuscous; antennae (without counting ring-joints) 10-jointed, the flagellum subclavate, pubescent, slightly more than three times as long as the scape; funicle 5-jointed, the first joint the longest, about two and a half times as long as thick at tip, the following cup-shaped, scarcely longer than thick; club fusiform, much thicker than funicle, 3-jointed, the joints compactly united, as long as the first and second joints united. Thorax with the parapsidal furrows well defined; pronotum narrower than the head or mesonotum, transverse-quadrate, as long as the mesonotum, or with the conically produced neck longer; scutellum convex, a little longer than the mesonotum; metanotum very short, medially impressed. Wings hyaline, pubescent, the venation yellowish; the marginal vein is much incrassated, a little wider at apex than at base, one and one-half times as long as the stigmal, which terminates in a small rounded stigma with a slight ucnus; postmarginal very little longer than the stigmal. Abdomen conic-ovate, as long as the thorax, the length of the body (excluding the short petiole) about three times as long as wide, as viewed from the side dorso-ventrally, the fourth body-segment as long as the first, second and third united.

♂.—Length 1–2.5 mm. This sex varies greatly in size and color, although otherwise, except in the usual sexual differences, it agrees with the female. One specimen is entirely black, with the legs colored as in ♀; another has the scape, all the legs (including coxae), except a blotch on hind femora, brownish yellow; while a third has the face, scape, the legs entirely, pronotum, except median dorsal stripe, mesopleura, scapulae, axillae and metathorax, except the median depression on dorsum and petiole, brownish yellow. The antennae have the first four flagellar joints contracted or petiolated at apex, the first being the longest, all with very long white hairs, the club is conic, composed of three joints compactly united and no longer than the first funicular joint; the flagellum varies from a light brown to black. The abdomen is attached to the metathorax by a long petiole, which is a little longer than the hind coxae, of a uniform thickness throughout and finely shagreened, the body, or abdomen proper, is ovate, subcompressed, very little longer than the petiole and with a deep longitudinal furrow above toward base, the first segment occupying fully two-thirds of its length, the following segments being more or less retracted.

Hab.—Morgantown, W. Va. Types in West Virginia Agricultural Experiment Station.

Described from six female and three male specimens bred by Prof. A. D. Hopkins as follows: one female labeled from a Scolytid in plum; three females from *Scolytus rugulosus* in peach, one male from the same Scolytid in cherry, and two females and two males from the same Scolytid in apple.

Eurytoma agrilli sp. n.

♀.—Length 4.5 mm. Head, except the vertex and occiput, which are black, the scape beneath and club of antennæ, the legs, except the hind coxæ, and abdomen beneath, brownish yellow. The head and thorax are umbilicate punctate, black, covered with a short, sparse, white pubescence; abdomen much compressed, highly polished, black, attached to the metathorax by a slender petiole, which is nearly as long as the hind coxæ, shagreened and narrowed toward the apex; the body of abdomen, viewed from the side, appear almost orbicular and two-thirds the length of the thorax, its regularity of outline being broken by the conically pointed projecting valves of the ovipositor; the first, third and fourth segments are about of an equal length and occupy most of its surface, the second, fifth and sixth segments being very short. The head is transverse, with the occiput deeply roundedly emarginated for the reception of the conically produced neck of the pronotum; frons with an antennal furrow; flagellum filiform, scarcely thickened toward apex, the joints elongate, the first the longest more than half the length of the scape, the following to club, very gradually shortening, the 3-jointed club scarcely as long as the first joint of funicle. Wings hyaline, the venation pale yellowish, the marginal vein not quite twice as long as the stigmal, the latter scarcely as long as the postmarginal, subelavate, truncate at apex.

Hab.—Morgantown, W. Va.

Described from one ♀ specimen bred by Prof. A. D. Hopkins from *Agrilus otiosus* in hickory bark.

Eurytoma lyeti sp. n.

♀.—Length 2.6 mm. Robust, coarsely umbilicate-punctate and clothed with a whitish pubescence; face, lower part of cheeks, scape, pedicel, trochanters, tips of femora and all tibiæ and tarsi, brownish yellow. Thorax with the pronotum very large and broad, fully as wide as the mesonotum and longer; scutellum a little longer than the mesonotum, less convex than usual; metanotum abruptly declining with a deep, longitudinal median furrow; wings hyaline, the venation light brown, the marginal vein less than twice as long as the stigmal, the postmarginal nearly twice as long as the stigmal. Abdomen ovate, not at all compressed, attached to the metathorax by a long petiole, which is fully as long as the hind coxæ and coarsely punctate; body of abdomen highly polished, the first and third segments nearly equal, the second very short, the fourth much the longest, as long as the three preceding united, fifth very short, sixth much longer, subopaque, pubescent.

Hab.—Morgantown, W. Va. Bred Sept. 10, 1893, by Prof. A. D. Hopkins from *Lyctus striatus* living in hickory.

Eurytoma tomiei sp. n.

♂.—Length 1.5 mm. Black; knees, tips of tibiæ and tarsi whitish; antennæ reaching to the tegulæ, the scape somewhat dilated beneath; funicular joints strongly constricted or pedunculated at apex, with long white bristles, the dilated portion of the joints being on the average about twice as long as wide; club conical, twice as long as the last funicular joint. Thorax with the pronotum and mesonotum about equal in length, the former, however, slightly the narrower; scutellum longer than the pronotum and less distinctly umbilicate punctate.

tate: metanotum sloping off behind and not so abruptly declining as is usual in the genus, approaching more nearly typical *Isosomæ*; tegulæ black. Wings hyaline, the venation light brown, the marginal vein one and a half times as long as the stigmal, the latter clavate with an uncus, the postmarginal vein not longer than the stigmal. Abdomen small, oval, with a petiole as long as the hind coxæ and finely punctulate; body of abdomen highly polished with the third segment the longest, the following retracted.

Hab.—Morgantown, W. Va. Bred by Prof. A. D. Hopkins from *Tomicus plagiata*.

The species comes nearest to *S. crassineura*, but is readily separated by the less thickened marginal vein, the dilated scape of antennæ, and the larger metanotum.

Eurytoma phlæotribi sp. n.

♀.—Length 1.5-2.1 mm. Black, scape beneath, trochanters, knees, tips of tibiæ and tarsi, honey-yellow or whitish; occasionally the face below, cheeks and anterior and middle coxæ are honey-yellow; the femora and tibiæ, except at both ends, being obfuscated. Head subquadrate, convex before, the frons deeply impressed for the reception of antennæ; flagellum subclavate, two and one-half times as long as the scape, the funicular joints submoniliform, the club large, fusiform, much stouter than funicle and half its length. Thorax with the pronotum longer than the mesonotum, but narrower; scutellum longer than the pronotum; metanotum short, declining, without a median impression. Wings hyaline, the venation yellowish, the marginal vein very slightly longer than the stigmal, somewhat stout, the postmarginal not longer than stigmal. Abdomen with a distinct, long, slender petiole, which is much longer than the hind coxæ; the body of abdomen is subcompressed, much shorter than the thorax, the fourth segment of which is the largest, occupying nearly the whole apical half.

Hab.—Morgantown, W. Va. Bred March 23, 1893, by Prof. A. D. Hopkins, from *Phlæotribus frontalis* Oliv. living in Mulberry.

Eurytoma magdalidis sp. n.

♀.—Length 2.6 mm. Entirely black, except knees, extreme tips of tibiæ and the tarsi, which are white. Head wider than thorax, or twice as wide as thick antero-posteriorly, the frons with an antennal furrow; flagellum not quite three times as long as the scape, subfiliform, the club scarcely thicker than the funicle; the first funicular joint is the longest, about one-half longer than the second, the two following subequal with the second, the fifth scarcely longer than wide; club conical, as long as the pedicel and first funicle united. Thorax with the pronotum not quite as wide, nor as long as the mesonotum; scutellum very slightly longer than the mesonotum; metanotum obliquely declining. Wings hyaline, the venation light brown, the marginal vein less than twice as long as the stigmal, the latter terminating in a stigma with quite a distinct uncus that is curved or directed upwards; postmarginal longer than stigmal. Abdomen distinctly petiolated, conic-ovate, longer than the head and thorax united, the petiole being nearly three times as long as thick, the segments 2, 3, 4, 6 and 7, very nearly equal in length, segment 5 a little longer than 3 and 4 united.

Hab.—Morgantown, W. Va. Bred by Prof. A. D. Hopkins from *Magdalis arnicollis* living in elm.

Eurytoma phlœosini sp. n.

♂.—Length 3 mm. Approaches nearest to the larger forms of males of *E. crassineura*, but differs at once in the following structural characters: The flagellum is nearly twice as long as in that species, extending to the tip of the metathorax, the funicular joints being much longer, each joint with two whorls of very long white bristles, the scape entirely black; marginal vein not so stout, the postmarginal distinctly longer than the stigmal. Legs, except trochanters and tips of femora, honey-yellow, the tarsi whitish; petiole of abdomen nearly twice as long as the hind coxæ, delicately shagreened with a furrow above toward apex, while the body of abdomen is small, subovate, the terminal segments retracted, the second and fourth segments subequal, the third as long as the second and fourth united, the first longer, with a petiolar furrow above at base.

Hab.—Morgantown, W. Va. Bred by A. D. Hopkins from *Phlœosinus dentatus* living in cedar.

EURYTOMOCHARIS Ashmead.

1888.—Entom. Amer. vol. iv, p. 42 (June).

(Type *E. minuta*.)

Eurytomocharis minuta sp. n.

♀.—Length 1 mm. Black; scape and legs, except coxæ and hind femora, brownish yellow; coxæ black, the hind femora fuscous; flagellum light brown; tegulæ and venation pale or whitish. Head wider than the thorax, the occiput concave, the frons convex, without an antennal furrow; antennæ 10-jointed, clavate, pubescent; pedicel a little longer than the first funicular joint; funicle 5-jointed, the joints moniliform, very slightly increasing in size; club large, ovate, much thicker than the funicle and as long as the last three funicular joints united. Thorax short, convexly elevated, the pronotum nearly three times as wide as long, the mesonotum about as large as the pronotum, with distinct furrows, scutellum convexly rounded, a little longer than the mesonotum, metanotum short. Wings hyaline, the marginal vein a little longer than the stigmal, slender. Abdomen ovate, pointed at tip, not longer than the head and thorax united, smooth, polished, with a very short petiole; first body segment a little longer than the second, the second and third subequal, fourth very long, occupying the rest of the surface, the following segments retracted, scarcely visible.

The ♂ has the flagellum black, the funicle 4-jointed and each joint peduncled at apex and nearly equal in length, the thickened part being about one and one-half times as long as thick, the club conical, 3-jointed, as long as the scape; the petiole of abdomen is longer than hind coxæ, smooth, polished, the abdomen proper short-ovate, the first segment two-thirds the length of the petiole with a furrow at base above, the second only half its length, the following very short subequal.

Hab.—Jacksonville, Fla. Types in coll. Ashmead.

PHYLLOXEROXENUS Ashmead.

1888.—Entom. Amer. vol. iv, p. 42 (June).

(Type *Eurytoma phylloxeræ* Ashm.)**BRUCHOPHAGUS** Ashmead.

1888.—Entomolog. Amer. vol. iv, p. 42 (June).

(Type *B. borealis*.)**Bruchophagus borealis** sp. n.

♀.—Length 2 mm. Black, pubescent; scape and legs, except hind coxæ and their femora toward base, which are black, brownish yellow. Wings hyaline, the tegulæ and venation yellowish, the marginal vein scarcely as long as the stigmal; flagellum short, subclavate, the joints submoniliform, wider than long after the first, and gradually increasing in width. Abdomen subsessile, nearly globose, polished, not longer than the thorax.

In the ♂ the scape is pale only at the basal one-third, the first and second funicular joints alone pedicellated, the third and fourth only slightly longer than thick, the bristles are not, or scarcely longer than the joints; legs, except hind coxæ, brownish yellow, while the body of abdomen is small, globose, attached to the metathorax by a petiole as long as the hind coxæ.

Hab.—Ottawa, Canada. *Types* in coll. Ashmead.

Bred by Mr. W. H. Harrington from a species of *Bruchus*.

Bruchophagus mexicanus sp. n.

♂ ♀.—Length 2.5 mm. Differs from above in having all coxæ, the femora, except tips, and the hind tibiæ medially, black; tegulæ dark piceous. Abdomen in ♀ two-thirds the length of thorax, polished, but under a high power showing delicate reticulations, the petiole short, but distinct.

In the ♂ the scape is entirely black, dilated beneath, the joint of funicle with the club part three times as long as thick.

Hab.—Las Cruces, N. Mex. Bred by Prof. Tyler Townsend from *Bruchus albiscutellaris* Horn.

Bruchophagus funebris How.

Eurytoma funebris How. U. S. Ag. Rept. 1879, p. 196.

Hab.—Eastern and Western States (common).

EVOXYSOMA Ashmead.

1888.—Entom. Amer. vol. iv, p. 42 (June).

(Type *Systole brachyptera* Ashm.)**Evoxysoma brachyptera** Ashm.

Systole brachyptera Ashm., Trans. Am. Ent. Soc. xiii, p. 126.

Hab.—Florida.

AXIMA Walker.

1862.—Trans. Ent. Soc. Lond. (3) i, p. 373.

(Type *A. spinifrons* Walk.)**Axima spinifrons** Walk., Trans. Ent. Soc. Lond. (3), i, 1862, p. 373.*Hab.*—St. Paul, Brazil.**Axima zabriskiei** How., Ins. Life ii, 1890, p. 366, figs. 68, 69, ♀, 70 ♂.*Hab.*—Nyack, N. Y., New Jersey and Agricultural College P. O., Michigan.**ISOSOMA** Walker.

1832.—Ent. Mag. vol. 1, p. 14.

(Type *Ichneumon verticillatus* Fabr.)**Isosoma albomaculatum** sp. n.

♀.—Length 2.2 mm. Black, shining, feebly punctate; anterior lateral angles of pronotum with a large, oblong, white spot; palpi whitish; knees and all tarsi, except the last joint, yellowish white; antennæ bearded, the funicle 5-jointed, the first joint the longest, nearly three times as long as thick, the others gradually shortening, fluted; club stouter than funicle, 3-jointed; mandibles reddish yellow; eyes whitish. Pronotum a little wider than long, quadrate; mesonotum with the lateral lobes convex, much shorter than the middle lobe; scutellum rounded behind, convex; metanotum rugose. Wings hyaline, pubescent, the tegulæ piceous, the venation light brown or yellowish, the marginal nervure about one and a half times as long as the stigmal, the latter about as long as the postmarginal. Abdomen subsessile, ovate, much broader than the thorax, and as long as the head and thorax united, highly polished, the segments nearly equal in length.

♂.—Length 1.5–2 mm. Agrees with ♀ in color, but the abdomen is smaller, not wider than the thorax and shorter, with a distinct, but short, finely rugose petiole, the antennæ being long, with whorls of long hairs, the flagellar joints nearly as long as the scape, each joint constricted or narrowed at apex.

Hab.—Morgantown, W. Va. Types in coll. West Virginia Experiment Station.

Described from two ♀ and eleven ♂ specimens.

Isosoma montanum sp. n.

♀.—Length 5 mm. Black; scape, pedicel and legs, except coxæ, brownish yellow; flagellum brown-black; coxæ black, the posterior pair closely punctate, clothed with a glittering white pubescence at sides. Antennæ with the first flagellar joint one-third longer than the second, the following joints a little longer than wide. Wings hyaline, the nervures pale yellowish, the marginal nervure thick, about twice the length of the stigmal, the latter forked at tip, the postmarginal very little longer than the stigmal. Abdomen pointed-ovate, polished, the segments toward base exhibiting a fine alutaceous sculpture, segment 5 a little the longest, with some sparse, white hairs at sides, segments 6 and 7 covered with white hairs.

♂.—Length 3.5 mm. Tips of femora, tibiæ at base and apex, and the stria, brownish yellow, antennæ black, the scape dilated beneath, not longer than the first flagellar joint, punctate above, smooth beneath; all flagellar joints fluted and pedicellated at apex, pilose, the first joint twice as long as the second, the following very nearly equal with the second. Abdomen with a very stout, coarsely rugose petiole, which is as long as the hind coxæ and thicker at base than at apex; segments 3, 4 and 5 about equal, the following very short.

Hab.—Montana and Colorado. Types in coll. American Entomological Society.

***Isosoma nevadense* sp. n.**

♂.—Length 5 mm. Black; scape and legs, except coxæ, brownish yellow, tarsi paler. Antennæ short; scape cylindrical, twice the length of the first funicular joint; joints of funicle very briefly pedicellated at apex, the first only a little longer than the second, the others subequal, about twice as long as thick, the whorls of hair short and sparse; hind coxæ long, conical, shagreened; metathorax coarsely rugose; wings hyaline, the nervures light brown, the marginal one and a half times as long as the stigmal, the latter ending in a knob with an uncus; postmarginal a little longer than the stigmal. Abdomen ovate, as long as the thorax, piceous beneath, the fourth segment as long as the fifth and sixth united; petiole long, rugose, longer than the hind coxæ, more than four times as long as thick.

Hab.—Nevada. Type in coll. American Entomological Society.

ISOSOMORPHA Ashmead.

1888.—Entom. Amer. vol. iv, p. 42 (June).

(Type *I. europæ*.)

***Isosomorpha europæ* sp. n.**

♀.—Length 4.5 mm. Black, finely rugulose; scape, mandibles, venation, a spot on anterior angles of pronotum, trochanters, tips of femora, the tibiæ, except hind pair, and all tarsi, brownish yellow. Head as wide as the mesonotum, viewed from in front, subtriangular, viewed from above, quadrate, the vertex slightly impressed and the impression extending into a deep frontal furrow whose sides are sloping, the anterior ocellus being placed directly in this furrow; antennæ 10-jointed, the flagellum pubescent, the first joint the longest, about twice as long as the pedicel, the following joints subequal, the club oblong, 3-jointed. Thorax elongated, the pronotum transverse-quadrate, not quite as long as the mesonotum; the latter with well-defined parapsides; scutellum a little longer than the middle lobe of mesonotum; metathorax quadrate, squarely truncate behind, the superior edge of the truncature distinctly margined, the dorsum distinctly longitudinally striated; wings hyaline, the marginal vein a little longer than the stigmal. Abdomen ovate, two-thirds the length of thorax, with an exceedingly short, rugose petiole, the body segments all very nearly equal in length, except the first, which is fully as long as the second and third united, and one of the characters distinguishing the genus.

Hab.—Lille, France. Type in coll. Ashmead.

Described from a single ♀ specimen, received some years ago from Mons. L. Lithierry, which was confused with several specimens of *Isosoma filicorne* Boh.

In the shape of the head and metathorax it differs widely from any other Eurytomid described, the metathorax being similar to those found in the Bethylids i. e., *Epyris*, *Mesitius*, etc.

Isosomorpha tibialis sp. n.

♀.—Length 4 mm. Black; trochanters, tips of femora, and all tibiæ and tarsi, brownish yellow; anterior angles of pronotum with a reddish spot; antennæ 12-jointed, two ring-joints, the flagellum subclavate, the first joint the longest; wings hyaline, the marginal nervure twice as long as the stigmal, the latter forked at apex; abdomen oblong-oval, the petiole coarsely punctate; body smooth, polished, the first segment much longer than the two following united, the sixth segment with a delicate scaly punctuation, sparsely pubescent.

♂.—Length 3.5 mm. Antennæ filiform, the joints all long, cylindrical, pilose, but not pedicellate; scape a little shorter than the first flagellar joint dilated beneath; metanotum with a central longitudinal furrow; petiole of abdomen longer than hind coxæ, rugose, about three times as long as thick; body of abdomen oval, the first segment as long as the two following united, the apical segments retracted.

Hab.—Montana, Dallas, Oreg. Types in coll. American Entomological Society and coll. Ashmead.

Described from two ♂ and two ♀ specimens labeled from Montana (coll. Am. Ent. Soc.); and one ♀ specimen in my collection taken by Mr. E. A. Schwarz at Dallas, Oreg., May 19, 1893.

ISOSOMOCHARIS Ashmead.

1888.—Entom. Amer. vol. iv, p. 42 (June).

(Type *I. sulcata* Ashm.)

Isosomocharis sulcata sp. n.

♀.—Length 1.8 mm. Black; spot on sides of pronotum, a small spot on hind angles of metathorax and legs, including all coxæ, brownish yellow; antennæ black or brown-black, the scape very slightly dilated beneath, the flagellum subclavate, pubescent, the pedicel long, obconical, one-third longer than the first funicular joint; funicular joints, after the first, submoniliform, very gradually increasing in width; club 3-jointed, ovate. Thorax shagreened, the middle lobe of mesonotum smooth, shining, impunctured, the metanotum long, with a shallow but distinct median sulcus, the bottom of which is transversely striated; wings hyaline, the nervures light brown, the marginal vein very long, twice as long as the stigmal. Abdomen ovate, about two-thirds the length of the thorax or a little longer, highly polished, impunctate, not compressed, the petiole wider than long, rugose, the first and third body segments long, the second about half the length of the first; those following the third very short.

Hab.—Jacksonville, Fla. Types in coll. Ashmead.

ISOSOMODES Ashmead.

1888.—Entom. Amer. vol. iv, p. 42 (June).

(Type *Isosoma gigantea* Ashm.)**Isosomodes gigantea** Ashm.*Hab.*—District of Columbia. Florida and St. Vincent, W. I.**PHILACHYRA** Haliday (Walker).

1871.—Haliday, in Walker's Notes on Chalcididæ, pt. 1, p. 7.

(Type *Philachyra ips* Hal.)**AILOMORPHUS** Walker.

1871.—Notes on Chalcididæ, pt. 1, p. 12.

(Type *A. rhopaloides* Walk.)

Subfamily CHALCIDINÆ.

CHALCIS Fabr.**Chalcis tarsalis** sp. n.

♂.—Length 2.1 mm. Black, except the tarsi, which are honey-yellow. Head and thorax rugoso-punctate; abdomen highly polished, impunctate, the first body segment the longest, the following about one-third the length of the first, subequal. Wings hyaline, tegulæ and nervures piceous-black, the marginal nervure twice the length of the stigmal, the postmarginal scarcely as long as the stigmal; the swollen hind femora with about seven small teeth.

Hab.—Morgantown, W. Va.

Described from a single specimen taken by Prof. A. D. Hopkins on elm.

This species resembles small specimens of *C. ovata* Say, but is quite distinct from it and all other described forms by the color of legs and tegulæ.

STOMATOCERA Kirby.**Stomatocera rubra** sp. n.

♀.—Length 4 mm. Brick-red, coarsely reticulately punctate, clothed with some sparse white hairs, the pubescence on the posterior coxæ and metapleura denser; scutellum bidentate at tip. Head antero-posteriorly thin, the vertex acute; antennæ 11-jointed, inserted just over the clypeus, the flagellum twice the length of the scape, the first joint only two-thirds the length of pedicel, the second as long, or a little longer than the pedicel, the following joints shorter. Thorax high, the pronotum transverse-quadrate; mesonotum with distinct parapsidal furrows; metathorax abrupt, with a trapezoidal enclosure on the metanotum, reticulated. Wings hyaline, with a dusky blotch across the wing, before

the marginal nervure, the nervures brown-black, the marginal vein long, the stigmal short, ending in a small knob. Abdomen globose, punctate, the second segment occupying less than half its whole length, the following short. The hind femora are not especially thick, with a few minute denticulations beneath at apex.

Hab.—Arizona, Texas. Types two ♀ specimens from Arizona in coll. American Entomological Society and two ♀ in U. S. National Museum from Texas.

Subfamily TORYMINÆ.

TORYMUS Dalman.

Torymus axillaris sp. n.

♀.—Length 2.5 mm.; ovipositor nearly 2 mm. Metallic green, transversely aciculated and shagreened, with some sparse punctures scattered over the surface, the middle lobe of mesonotum and the scutellum with a thimble-like punctuation, the axillæ almost smooth, with some faint striæ, greatly contrasting with the rest of the surface; posterior part of mesopleura smooth, impunctate, the sides of metanotum bearded with white hairs. Antennæ brown-black, the scape brownish yellow toward base, pedicel metallic, flagellum filiform, with a fine dense, white pubescence, the joints compact, those composing the funicle longer than wide, the first the longest. Legs, except the trochanters, tips of femora and anterior and middle tibiæ and all tarsi, which are honey-yellow or yellowish white, metallic green. Wings hyaline, the venation pale, the marginal vein long, two-thirds the length of the submarginal, the stigmal short clavate, a little shorter than the postmarginal.

Hab.—Morgantown, W. Va.

Described from a single specimen collected by Prof. A. D. Hopkins, May 11, 1891.

Torymus hircinus sp. n.

♀.—Length 2.5 mm.; ovip. 1.8 mm. Metallic green, finely, closely punctate, clothed with a distinct, white pubescence, which is quite dense on the head and pronotum; antennæ brown-black, the scape pale only at extreme base; flagellum subclavate, three times as long as the scape, the club stout, the funicular joints gradually shortening, the last being wider than long, the first the longest, about two and a half times as long as thick. Thorax with the parapsidal furrows entire, the pronotum conical, the metanotum short, smooth, transverse, the spiracles small, elliptic. Legs, except coxæ, yellow, the tarsi whitish. Wings hyaline, the tegulæ whitish, the venation light brownish yellow, the marginal vein nearly as long as the submarginal, the stigmal very short with an uncus, less than half the length of postmarginal. Abdomen about as long as the thorax, golden green, smooth, the sides of each segment fimbriate with long white hairs.

♂.—Length 2 mm. Agrees with the female, except in the usual sexual differences; the flagellum is thicker, filiform, more than four times as long as the scape, brown and covered with a fine, short pubescence, the joints being a little

longer than thick, the abdomen is clavate, two-thirds the length of thorax, well clothed with a whitish pubescence; otherwise in color, structure of wings, etc., it agrees with female.

Hab.—Morgantown, W. Va.

Described from ♂ ♀ specimens bred by Prof. A. D. Hopkins from a willow twig-gall. The white pubescence is quite characteristic of the species.

***Torymus persimilis* sp. n.**

♀.—Length 3 mm.; ovipositor 2 mm. Metallic green, shagreened, the metanotum and basal flap of abdomen blue; scape, pedicel, tegulae and legs, except middle and hind coxae, brownish yellow; pronotum subquadrate, the hind margin obtusely, triangularly emarginated; metanotum smooth; hind coxae metallic blue and green; flagellum black subclavate, about two and a half times the length of scape, the first funicular joint quadrate.

Hab.—Morgantown, W. Va.

Described from a specimen captured May 1, 1891, by Prof. A. D. Hopkins. Comes nearest to *T. sackenii* Ashm. in shape, but differs in color of antennae, coxae, shape of pronotum, and in having a longer ovipositor.

Subfamily TRIDYMINÆ.

TRIDYMUS Ratzeburg.

***Tridymus robiniaecola* sp. n.**

♀.—Length 1.8 mm. Bluish, sometimes with the head in front and the middle lobe of mesonotum metallic green; scape, trochanters, anterior tibiae and middle and hind tibiae at tips and all tarsi, honey-yellow. Antennae inserted just above the clypeus, the flagellum subclavate, brown above, yellowish beneath, pubescent, the joints, after the first, wider than long; scutellum longer than wide, convex, with a cross furrow behind the middle, the apical part metallic green; metanotum very short, smooth, æneous, with a subobsolete median carina. Wings hyaline, pubescent, the venation brownish, the marginal vein not twice as long as the stigmal, the latter ending in a rather large, rounded stigma, with a very minute uncus, the postmarginal a little shorter than the marginal. Abdomen sessile, oval, depressed above, purplish or bluish, with metallic reflections.

The ♂ is almost wholly blue, with the legs, except the coxae and hind femora, honey-yellow; flagellum filiform, more densely pubescent, the funicular joints, except the first, being quadrate; specimens occur with the head and thorax distinctly metallic green.

Hab.—Morgantown, W. Va.

Described from specimens bred by Prof. A. D. Hopkins.

This species comes close to *T. salacis* Nees, of Europe, but the abdomen is much shorter and the color of the legs is different. It has

not a particle of resemblance to *T. metallicus* Ashm. described from Kansas, which is metallic-green with a decided punctuation, the present species being nearly smooth.

Subfamily PTEROMALINÆ.

Tribe *Cleonymini*.

PLATYGERRHUS Thomson.

Platygerrius? scolyti sp. n.

♀.—Length 1.5 mm. Blue-green, scaly punctate; scape and legs, except coxæ, light brown, the femora dusky, the tarsi whitish; flagellum brown. Head subquadrate, much wider than the thorax, about twice as wide as thick antero-posteriorly; scape rather long, reaching slightly beyond the ocelli; pedicel two-thirds the length of first funicular joint; flagellum subclavate, twice the length of the scape, the joints longer than thick. Thorax with the pronotum very short, visible from above only at the lateral margins or corners; mesonotum about as long as wide, with the parapsidal furrows indicated only anteriorly; scutellum convex, longer than wide; metanotum very short, smooth, impunctate. Wings hyaline, pubescent, the marginal vein very slender, only one and a quarter times as long as the stigmal, the latter long, slightly curved and ending in a stigma, the postmarginal a little longer than the stigmal. Abdomen sessile, conic-ovate, about as long as the head and thorax united, depressed above, boat-shaped beneath, æneous-black.

Hab.—Morgantown, W. Va. Bred by Prof. A. D. Hopkins from *Scolytus rugulosus* living in apple.

Tribe *Sphegigasterini*.

PARACAROTOMUS gen. nov.

Head very large, shaped as in *Caratomus* Dalm., only the frontal horns are absent, the cheeks very broad, distinctly margined. Antennæ 13-jointed, the flagellum filiform, the pedicel very small, the ring-joints 2, the funicular joints longer than wide. Thorax not quite as wide as the head, the pronotum short, transverse, distinct, and fully as wide as the mesonotum, the parapsidal furrows entire, but delicate; scutellum convex, not quite as long as the mesonotum; metanotum declining, with a curved fold or carina on each side of the middle, converging and extending to the petiole; spiracles oblong; wings with the marginal vein fully three times as long as the stigmal, the postmarginal long. Abdomen elongate, subcompressed, with a very long petiole, the petiole twice the length of the hind coxæ; body of abdomen emarginate above at base, the first three

segments long, occupying most of the surface, the second the longest, the segments after the third very short.

Paracarotomus cephalotes sp. n.

♂.—Length 4 mm. Head and thorax dull black, confluent punctate, the lower part of face with some striæ converging toward mouth; mandibles, tegulæ and legs, except coxæ, rufous or light rufous. Wings hyaline, the costal cell broad; abdomen æneous-black, smooth, the petiole opaque, finely shagreened.

Hab.—Morgantown, W. Va.

This interesting addition to our genera of the *Sphegigastrides* was captured by Prof. A. D. Hopkins in the sweeping net and confirms an opinion which I have had for some time, *i. e.*, that Thomson's tribe Caratomides will not hold and must be conjoined to the *Sphegigastrides* this new genus forming a connecting link between them.

CYRTOGASTER Walker.

Cyrtogaster liqueatus sp. n.

♂.—Length 1.8 mm. Blue-black, punctate, with a slight æneous tinge on the thorax; metapleura and hind coxæ bright metallic green; scape, except at extreme base and pedicel, submetallic brown; flagellum brownish yellow, the joints wider than long, fluted; legs brownish yellow. Head much wider than the thorax a little more than three times as wide as thick antero-posteriorly, the broad face bluish; mandibles rufous; palpi piceous, the dilated joint brownish. Thorax with the pronotum distinct, about half the length of the mesonotum, the latter with the parapsidal furrows indicated only anteriorly; scutellum not wider than long, obconical, convex; metanotum smooth, with lateral folds and a median carina. Wings hyaline, the tegulæ piceous, the venation pale yellowish, the marginal vein about twice as long as the stigmal, the postmarginal two-thirds the length of the marginal. Abdomen small, oval, with a short, but distinct, finely punctate petiole; first segment of the body occupying half its whole surface, deeply emarginate above at base, the following segments short, subequal.

Hab.—Morgantown, W. Va. Bred by Prof. A. D. Hopkins from *Phlæosinus dentatus* living in cedar.

Tribe *Pteromalini*.

ROPTROCERUS Ratzeburg.

1844.—*Pachycerus* Ratzb. Die Ichn. d. Forstins. i, p. 217.

1848.—*Roptrocerus* Ratzb. l. c. ii, p. 209; Först. Hym. Stud. ii, 1856, p. 64; Thomson, Hym. Scand. v, 1878, p. 83.

(Type *Pachycerus xylophagorum* Ratzb.)

Roptrocerus xylophagorum Ratzb.

Pachycerus xylophagorum Ratzb. Die Ichn. d. Fortins. i, p. 218.

Roptrocerus xylophagorum Ratzb. l. c. ii, p. 209, taf. iii, f. 2.

Hab.—Europe and Morgantown, W. Va.

This European species has been recognized in our fauna from specimens reared by Prof. A. D. Hopkins from *Polygraphus rufipennis* living in spruce March 26, April 17 and June 23, 1891.

Roptrocerus eccoptogastri Ratzb.

Pachycerus eccoptogastri Ratzb. Die Ischn. d. Fortins. i, p. 218.

Roptrocerus eccoptogastri Ratzb. l. c. ii, p. 209.

Hab.—Europe and Morgantown, W. Va.

Prof. A. D. Hopkins has also bred this European species from the following Scolytids: July 20, 1891, from *Tomicus calligraphus* in white pine; July 20, 1891, from *Tomicus pini* in pine; August 22, 1891, from *Tomicus cacographus* in yellow pine; July 13, 1892, from *Tomicus cælatus* in Norway spruce; and January, 1893, from *Dendroctonus frontalis* in pine.

CECIDOSTIBA Thomson.

1878.—Hym. Scand. vol. v, p. 92.

(Type *C. rugifrons* Thoms.)

Cecidostiba dendroctoni sp. n.

♀.—Length 4.3 mm. Bluish, the head and thorax above metallic green, confluent punctate; scape, pedicel and legs, except coxæ and femora, which are more or less blue, or metallic, brownish yellow; flagellum black, pubescent; sometimes the head and thorax are entirely golden-green, more rarely entirely blue. The head is wider than the thorax, about twice as wide as thick antero-posteriorly, the frons with no distinct antennal furrow; mandibles and palpi light rufous; antennæ long, the scape long and slender, extending slightly beyond the ocelli; flagellum filiform, pubescent, about two and a half times the length of the scape, all the funicular joints long, the first being the longest, about six times as long as thick, the following very gradually shortening the club not as long as the first joint of funicle. Thorax with the mesonotum longer than wide at base, the pronotum very short, but distinct; parapsidal furrows only indicated anteriorly; scutellum much longer than wide at apex; metanotum very short, transverse, with rounded spiracles, the latter with a sulcus behind. Wings hyaline; tegulæ yellowish, venation light brownish yellow, the marginal vein is slender, one and a half times as long as the stigmal, the latter terminating in a large, rounded stigma, with a slight uncus; postmarginal vein fully as long as the marginal. Abdomen sessile, acuminate and compressed, one and a half times as long as the head and thorax united, the basal flap cupreous, the rest bluish with a metallic tinge, or sometimes with the sides for two-thirds the length of abdomen golden-green.

Hab.—Morgantown, W. Va.

Described from specimens bred by Prof. A. D. Hopkins from *Dendroctonus frontalis* living in pine, and *Polygraphus rufipennis* in spruce.

Cecidostiba polygraphi sp. n.

♀.—Length 2.5 mm. Bronze-green; scape and legs, including the coxæ, brownish yellow, the femora more or less dusky or obfuscated, the coxæ never metallic or blue. Abdomen variable, æneous black or bluish with metallic tinges; otherwise, except its smaller size, and in having subclavate antennæ, with the funicular joints much shorter it agrees with *C. dendroctoni*.

The ♂ averages from 1.5 to 2 mm., and varies from an æneous-black to a golden-green, the abdomen with a white spot at base.

Hab.—Morgantown, W. Va.

Described from specimens in both sexes, reared by Prof. A. D. Hopkins from *Polygraphus rufipennis* in spruce.

STINOPLUS Thomson.

1872.—Hym. Scand. vol. v.

(Type *Pteromalus militaris* Dalm.)

Stinoplus cyaneus sp. n.

♂.—Length 2 mm. Cyaneus; scape, mandibles, except teeth and legs, except coxæ and tarsi, brownish yellow; tegulæ and tarsi whitish; flagellum brown-black, subclavate, clothed with a fine, sparse pubescence, the funicular joints about two and a half times as long as thick. Head and thorax scaly-punctate; head wider than thorax, the eyes whitish; mesonotum with distinct furrows; pronotum scarcely visible from above; scutellum with a cross-furrow behind the middle; metanotum short, smooth, with three carinæ. Wings hyaline, pubescent, the venation brownish yellow, the marginal vein one and a half times as long as the stigmal, the postmarginal a little longer than the marginal. Abdomen elongate, clavate, subpetiolated, much narrower than the thorax, but as long as head and thorax united.

Hab.—Morgantown, W. Va.

Described from a specimen collected by Prof. A. D. Hopkins.

CATOLACCUS Thomson.

1872.—Hym. Scand. vol. v. p. 152.

(Type *C. cavigera* Thoms.)

Catolaccus nigroæneus sp. n.

♀.—Length 2 mm. Aeneous-black, confluent punctate, clothed with sparse, short, white hairs; sides of body and abdomen bluish; scape and mandibles rufous; coxal sutures, knees and tarsi yellowish white, the tibiæ more or less obfuscated at the middle; rest of legs black or brown-black, the coxæ bluish; flagellum brown. Head very wide, about four times as wide as thick antero-posteriorly, the space between the eyes very broad; flagellum slightly more than twice as long as the scape, subclavate, pubescent, the joints delicately fluted, the funicular joints all longer than wide; metanotum very short, smooth, but tricarinated, with the apex a little produced and projecting slightly over the insertion of abdomen. Wings hyaline, pubescent, the venation brownish yellow,

the marginal vein twice as long as the stigmal, the latter a little shorter than the postmarginal. Abdomen sessile, pointed-ovate, very slightly longer than the head and thorax united, depressed and bare above, keeled and clothed with short, sparse white hairs below.

♂.—Length 1.5 mm. Agrees with the female, except the head and thorax above, are decidedly metallic green, almost entirely devoid of the peculiar short, white hairs; the flagellum is slightly shorter, subfiliform and more hairy; the tibiæ paler, very indistinctly obfuscated at the middle; the marginal vein less than twice the length of the stigmal, while the abdomen is oblong-oval, only two-thirds the length of the thorax.

Hab.—Morgantown, W. Va.

Described from one ♂ and two ♀ specimens bred by Prof. A. D. Hopkins from a Dipterous gall on box elder. Comes nearest to *C. anthonomi* Ashm., but is quite distinct in the color of head and thorax, and in the denser white vestiture.

ARTHROLYTUS Thomson.

1872.—Hym. Scand. vol. v, p. 158.

(Type *A. punctatus* Thoms.)

Arthrolytus pimplæ sp. n.

♀.—Length 1.5–2.2 mm. Dull bronze-green, confluent punctate; scape brownish yellow; legs, except coxæ, reddish yellow; abdomen acute-ovate, somewhat longer than the head and thorax united, æneous-black. Head about three times as wide as thick antero-posteriorly, the cheeks a little wider than half the width of the eyes; flagellum subclavate, finely pubescent, the pedicel longer than the two ring-joints and the first funicular joint united, or a little longer than the 3-jointed club; all funicular joints, except the last, longer than wide, the last fully as wide as long. Thorax as in *Arthrolytus* (*Semiotellus*) *clisio-campæ* Fitch, the metanotum short, tricarinated.

♂.—Length 1.6–2 mm. Head and thorax metallic green, with purplish or bluish reflections, confluent punctate; antennæ and legs yellow, the flagellum very slightly darker than the scape, subclavate, pubescent, the funicular joints, except the first, all wider than long. Abdomen much depressed, oblong-oval, shorter than the thorax, æneous or metallic, and sometimes, but not always, with a pale spot at base.

Hab.—Morgantown, W. Va.

Described from several specimens bred by Prof. A. D. Hopkins from *Pimpla inquisitor* Say.

Subfamily EUPELMINÆ.

EUPELMUS Dalman.

Eupelmus cleri sp. n.

♀.—Length 4.5 mm.; ovipositor 1 mm. Head, scape, pedicel, pronotum, streak on mesonotum, mesopleura, except posteriorly, metapleura and hind coxæ, blue; thorax above and abdomen bronzed black; flagellum black; anterior tro-

chanters, knees, tibiæ and tarsi, middle legs, including coxæ, and hind trochanters, tips of their femora and their tibiæ and tarsi, brownish yellow, rest of legs dark brown; ovipositor, except at base, light brown. Wings hyaline, the nervures brown, the marginal and postmarginal veins very long, as long as the submarginal, the stigmal vein about one-third the length of the marginal. Abdomen sessile, acuminate, longer than the head and thorax united, shagreened, sparsely pubescent.

♂.—Length 2.5 mm. Blue-black, submetallic, the head, except the vertex and the scape, blue; frons with an antennal furrow; antennæ widely separated at base, the flagellum subclavate, black, the fifth, sixth and seventh funicular joints wider than long; mesonotum with slight indications of furrows anteriorly, not deeply or sharply defined, obsolete posteriorly; mesopleura with a longitudinal impressed line, the triangular piece before the tegulæ and the hind coxæ blue; legs blue-black, the middle tibiæ and tarsi dark brown, the hind femora somewhat compressed. Wings hyaline, the marginal vein only two and a half times the length of the stigmal. Abdomen ovate pointed, as long as the thorax.

Hab.—Morgantown, W. Va.

Described from ♂ and ♀ specimens bred April 26, 1893, by Prof. A. D. Hopkins from a Clerid larva in white pine. This species comes nearest to *E. cyaniceps* Ashm., but is larger, somewhat differently colored, and with a much longer postmarginal vein.

***Eupelmus juglandis* sp. n.**

♀.—Length 2-2.1 mm. Head blue, the thorax æneous or blue-black; trochanters, knees, anterior tarsi, middle and posterior tibiæ and tarsi, honey yellow; the hind tibiæ usually with a dusky blotch at the middle. Wings hyaline, the venation light brown, the marginal and postmarginal veins very long, the stigmal with a slight curve, less than half the length of the marginal. Abdomen æneous-black, bluish at base, sessile, depressed, only two-thirds the length of the thorax, the ovipositor sub-exserted, or with only the tip exposed, the tip being light brown or yellowish.

Hab.—Morgantown, W. Va.

Described from several specimens bred June 17, 1893, by Prof. A. D. Hopkins from an unknown larva living in walnut.

Subfamily ELACHISTINÆ.

ELACHISTUS Spinola.

***Elachistus proximus* sp. n.**

♀.—Length 1.65 mm. Aeneous-black; scape and legs, except anterior coxæ and base of their tibiæ, which are black, honey-yellow; flagellum brown-black, pubescent, subcompressed, the funicular joints about three times as long as wide. Head smooth, impunctate; mesothorax and scutellum feebly scaly-punctate;

metanotum smooth, with a median carina. Wings hyaline, pubescent, the venation pale or yellowish. Abdomen ovate, black, keeled beneath, with a very short, punctate petiole.

Hab.—Morgantown, W. Va.

Described from a single specimen captured April 29, 1891, by Prof. A. D. Hopkins.

MIOTROPIS Thomson.

1872.—Hym. Scand. vol. v, p. 197.

(Type *M. sulcicrista* Thoms.)

Miotropis elisiocampæ sp. n.

♀.—Length 1.5 mm. Black, polished; the scutellum and metathorax light brown or yellowish; scape, pedicel, first funicular joint and legs, including coxæ, pale yellow, rest of flagellum black; pedicel very long, as long, or a little longer than the club. Wings hyaline, pubescent, the marginal vein very long, the stigmal and postmarginal very short, equal in length. Abdomen orbicular, a little wider than the thorax, with a very short petiole, subsessile.

Hab.—Morgantown, W. Va.

Described from four ♀ specimens bred June 28, 1891, by Prof. A. D. Hopkins from *Clisiocampa americana* on apple.

CIRROSPILUS Westwood.

1832.—Lond. and Edin. Phil. Mag. vol. i, p. 128.

1851.—*Aulogymnus* Först. Verh. Pr. Rhein.

(Type *C. elegantissimus* Westw.)

Cirrospilus flavomaculatus sp. n.

♀.—Length 1.5 mm. Aeneous black: spot on vertex near eye and extending narrowly behind the eye, a large quadrate spot at base of middle lobe of mesonotum just in front of scutellum, and legs, except coxæ, lemon-yellow; flagellum clavate, brown, pubescent; frons impressed, the vertex acute. Thorax feebly scaly-punctate. Wings hyaline, pubescent. Abdomen ovate as long as the head and thorax united, briefly petiolated, the first body segment the longest, the others all short, subequal.

Hab.—Morgantown, W. Va.

Described from a single specimen collected May 2, 1891, by Prof. A. D. Hopkins.

Subfamily ENTEDONINÆ.

HOLCOPELTE Förster.

Holcopelte tarsalis sp. n.

♂ ♀.—Length 1–1.5 mm. Blue-black, the three basal joints of tarsi white; the male with the face, prosternum and mesopleura cupreous, the abdomen small,

orbicular, scarcely half the length of thorax; in female long-ovate, nearly as long as the head and thorax united, the first body segment occupying one-third of its surface, the following segments all short, subequal.

Hab.—Morgantown, W. Va.

Described from specimens bred by Prof. A. D. Hopkins from cocoons of an *Apanteles* obtained from a *Sphinx* larva.

Holcopelte euplectri How.

Elachistus euplectri How., Fourth Rep. Ent. Com. App. p. 108.

Hab.—Alabama, Florida (Ashmead).

This species, described by Mr. Howard under the genus *Elachistus*, belongs in reality to this genus.

Holcopelte producta sp. n.

♂ ♀.—Length 2–2.6 mm. Head and thorax cupreous, scaly-punctate; pleura and beneath bluish. Abdomen æneous-black, in ♀ conically produced, as long as whole surface, the following segments short, in ♂ much shorter than thorax, truncate at tip; scape yellowish; pedicel and flagellum metallic, pubescent; legs, except coxæ, white.

Hab.—Las Cruces, N. Mex. Types in National Museum.

Described from several specimens bred by Prof. Tyler Townsend from *Bruchus amicus* Horn.

ENTEDON Dalman.

Entedon bigeloviae sp. n.

♀.—Length 2.5–3 mm. Robust, variable in color from a bronze-green to bluish green or bluish, coarsely squamous; face below antennæ bluish; mandibles rufopiceous; spot on knees and tarsi white. Abdomen æneous-black, brassy at base. Head transverse, wider than thorax, the occiput broadly concave, the superior margin sharp; eyes large, broadly ovate; scape and pedicel æneous; flagellum black, or brown-black, the first funicular joint the longest, the third and fourth subequal, a little shorter, but stouter than the first; club short, ovate. Wings hyaline, the venation brown, the marginal vein very long, a little longer than the submarginal, rather stout, the stigmal scarcely developed, ending in a knob. Abdomen ovate, depressed above, as long as the head and thorax united, the petiole short, the first body segment the longest.

Hab.—Las Cruces, N. Mex., Arizona, Dalles, Oregon and Wasatch, Utah. Types in National Museum and coll. Ashmead.

The specimens from Las Cruces were reared by Prof. T. Townsend from *Eurosta bigeloviae* Ckll.; those from Oregon and Utah were collected by Mr. E. A. Schwarz.

Subfamily EULOPHINÆ.

SYMPIESIS Förster.**Sympiesis unicarinatus** sp. n.

♀.—Length 2.5 mm. Head blue, smooth, impunctured; thorax and hind coxæ bronzy-green, confluent punctate; mesopectus and pleura bluish or purplish; anterior and middle coxæ smooth; scape and legs, except posterior femora above and the last tarsal joints yellow, posterior femora above and last joint of all tarsi brown. Abdomen æneous. Wings hyaline, the venation brown; marginal vein long, as long as the submarginal, the postmarginal two-thirds the length of marginal, the stigmal oblique, subclavate, with a slight uncus before the tip, about half the length of postmarginal; flagellum black, somewhat compressed, about three times as long as the scape, the first and last joints about equal, three times as long as wide, the intermediate joints only about two and a half times as long as wide, all covered with a short pubescence; metanotum smooth, divided into two areas by a central carina; metapleura punctate, the spiracles round.

Hab.—Morgantown, W. Va.

Subfamily TETRASTICHINÆ.

TETRASTICHUS Haliday.**Tetrastichus thanasimi** sp. n.

♀.—Length 1.2–1.5 mm. Polished black; scape, tegulæ, trochanters, tips of femora and all tibiæ and tarsi, yellowish white; flagellum brown, the funicular joints less than twice as long as thick; club ovate, thickened; femora, except tips, brown. Abdomen sessile, ovate, wider than thorax, but no longer.

Hab.—Morgantown, W. Va.

Described from specimens bred April 15, 1891, by Prof. A. D. Hopkins from the larva of a *Thanasimus* sp. living in sumach.

Tetrastichus scolyti sp. n.

♀.—Length 2 mm. Black, subopaque, with a microscopic punctuation; scape beneath, coxæ and femora, except tips, and tibiæ, except at the middle, brownish yellow; flagellum and scape above black, or brown-black; tegulæ piceous-black, flagellum subclavate, the funicular joints more than twice longer than thick, the club stouter, ovate, 3-jointed. Abdomen sessile, conic-ovate, longer than the head and thorax united.

Hab.—Morgantown, W. Va.

Described from specimens bred April 25 and June 26, 1891, by Prof. A. D. Hopkins from *Scolytus rugulosus* living in peach and apple.

SYNTOMOSPHYRUM Förster.

1878.—Verh. d. Nat. Ver. Jahrg. xxxv, p. 61.

(Type *S. fulvipes* Först.)

Syntomosphyrum orgyiae sp. n.

♀.—Length .9 mm. Polished black; scape and legs brown, the knees and tips of tibiæ whitish, the femora obfuscated at the middle; flagellum brown,

pubescent, the funicular joints scarcely longer than thick; mesonotum without a median impressed line. Wings hyaline, pubescent, the venation light brown. Abdomen orbicular, subsessile, much shorter than the thorax, but a little wider, with the segments nearly equal.

Hab.—Morgantown, W. Va. Bred June 10, 1891, by Prof. A. D. Hopkins from *Orgyia leucostigma* on maple.

TETRASTICHODES Ashmead.

Tetrastichodes tibialis sp. n.

♀.—Length 1–1.5 mm. Blue-black, polished; scape, trochanters, tibiæ and tarsi yellowish white; femora, except tips, brown or dusky; flagellum brown, pubescent, the funicular joints subequal, about one and a half times as long as thick, the club stouter, ovate, 3-jointed; collar distinct, mesonotum without the median impressed furrow or line. Wings hyaline, pubescent, the venation pale. Abdomen ovate, pointed at tip, not longer than the thorax.

Hab.—Morgantown, W. Va.

Described from specimens bred by Prof. A. D. Hopkins from a parasitic cocoon, *Limneria* sp. parasitic on *Acronycta*.